

WHAT IS CLAIMED IS:

1. Gas chromatograph comprising:

a separation device, which separates the substances of a substance mixture supplied to the separation device in a dosed manner and flowing through a path of the separation device,

a detector device disposed downstream of the separation device, which generates detector signals as a function of the arriving separated substances,

an evaluation device, connected to the detector device, which, in accordance with the detector signals, provides a quantitative determination of specified substances, based on the detector signals, as a first result,

an additional detector device, arranged in the path of the separation device, which generates additional detector signals in accordance with the substances that at this stage have not been completely separated, and

a computational unit, connected to the additional detector device, which provides a further quantitative determination of at least a portion of the specified substances, based on the additional detector signals, as an additional result.

2. Gas chromatograph as claimed in Claim 1, further comprising:

a process control device controlled by the evaluation device, wherein

if a rate of change in the additional result of the computational unit is larger than a rate of change in the first result, the process control device uses the additional result at least predominantly, and

otherwise the process control device uses the first result of the evaluation device for the process control.

3. Gas chromatograph as claimed in Claim 2, wherein the process control device is at least one of an open-loop control device and a closed-loop control device.

4. Gas chromatograph as claimed in Claim 1, wherein the computational unit comprises:

a computational algorithm with variable parameters for quantitative determination of the specified substances or the portion thereof,

a memory unit, which stores the additional result provided by the computational unit,

a comparator unit, which compares the first result of the evaluation device and the stored additional result of the computational unit, and

a correction algorithm, which changes the parameters of the computational algorithm as a function of a variance between the result of the evaluation device and the stored additional result of the computational unit in order to reduce the variance.

5. Gas chromatograph as claimed in Claim 1, wherein the additional detector device comprises a measuring path, through which the substance mixture flows, having cross-sectional dimensions corresponding substantially the cross-sectional dimensions of the separation device.

6. Gas chromatograph as claimed in Claim 5, wherein the additional detector device comprises a thermal conductivity detector with heating resistors arranged in a bridge circuit, and wherein two of the heating resistors, located opposite each other in the two different halves of the bridge, are arranged in the measuring path.

7. Gas chromatograph as claimed in Claim 6, wherein the thermal conductivity detector works alternately as the detector device and the additional detector device, and wherein two others of the heating resistors are arranged in a

measuring path, through which the substance mixture flows, of the detector device disposed downstream of the separation device.